Green Strides Webinar Series: Discover Why Good IAQ is Essential for Green and Healthy Schools

Thursday, June 21, 2012
1 – 2 p.m. EDT

Welcome to the Green Strides Webinar Series!

Andrea Suarez Falken, Director, U.S. Department of Education Green Ribbon Schools

U.S. DEPARTMENT OF EDUCATION
GreenRibbonSchools

Introductions

Facilitator:

- Tracy Washington Enger, Indoor Environments Division, U.S. Environmental Protection Agency

Speakers:

- Richard Cox, Environmental Safety Coordinator, Montgomery County Public Schools, Maryland
- Shelley Bengtson, Environmental Specialist, Omaha Public Schools, Nebraska

Objectives

- Learn how EPA's *IAQ Tools for Schools* guidance can be utilized to improve indoor learning environments and meet the Green Ribbon Schools Pillar Two criteria.
- Convey why IAQ is an essential component of green and healthy schools.
- Demonstrate the connection between IAQ and healthy learning environments.
- Discover how improved IAQ leads to academic success.

3 Pillars of GRS Criteria:

I. **Environmental Impact and Energy Efficiency**

II. **Healthy School Environments**

III. **Environmental and Sustainability Education**

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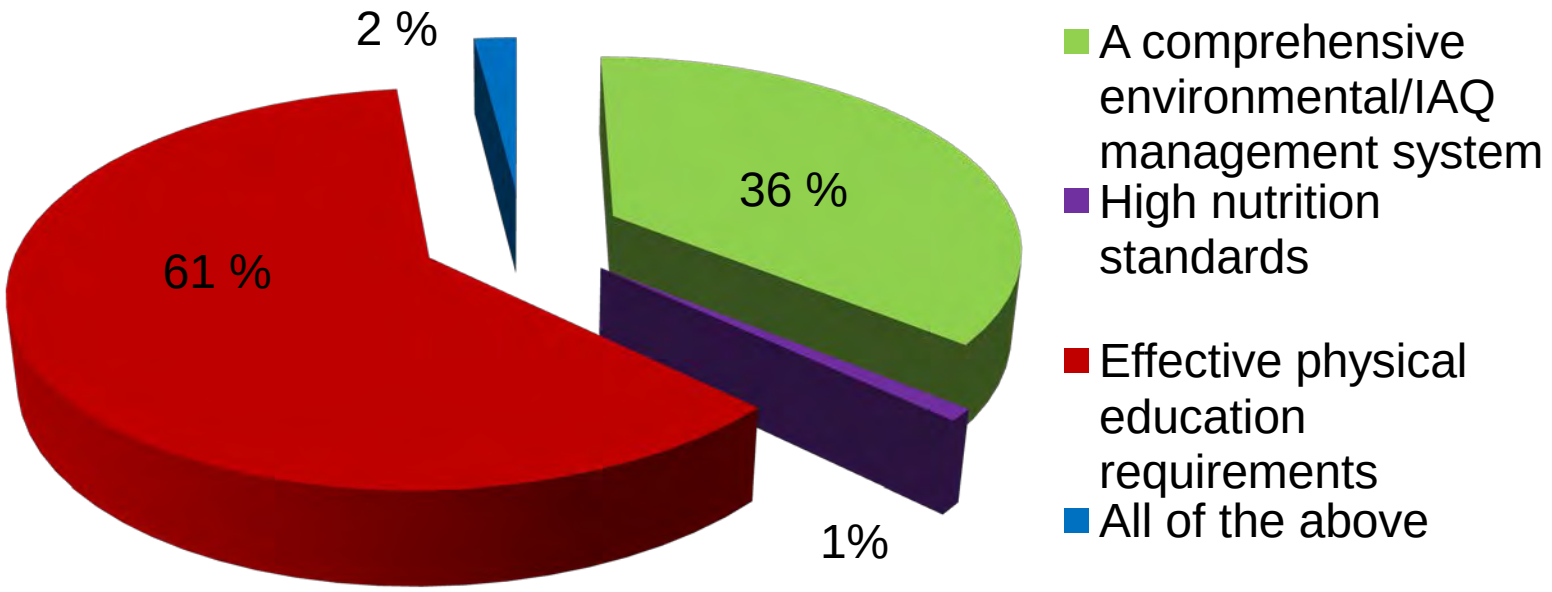
Polling Question

What comes to mind when you think of Pillar Two – Healthy School Environments?



Pillar Two Criteria

- Goal: The school environment has a "net positive" impact on student and staff health.
- Pillar 2 includes two main elements:
  - 2A: An Integrated School Environmental Health Program
  - 2B: High Nutrition and Fitness Standards

Pillar Two Criteria (2A)

An **integrated school environmental health program** based on an operations and facility-wide environmental management system that considers student and staff health and safety in all practices related to design, construction, renovation, operations, and maintenance of schools and grounds.

Sections of GRS Evaluation Framework:

- Integrated Pest Management
- Ventilation
- Contaminant Controls
  - Radon, carbon monoxide, mercury, tobacco smoke, chromated copper arsenate, asthma control, indoor air quality, moisture control, chemical management

Why Care about Healthy School Environments?

- Healthy human environments and buildings
- Health of the occupants
- Education and academic achievement

Why are Healthy School Environments Important?

The indoor environment is the human environment

We spend 90% of our day indoors!

IAQ and Healthy Buildings

- IAQ impacts the occupants' health, comfort and ability to perform.
- IAQ is one component of a school's physical environment and is often the most easily overlooked.

Health of Occupants

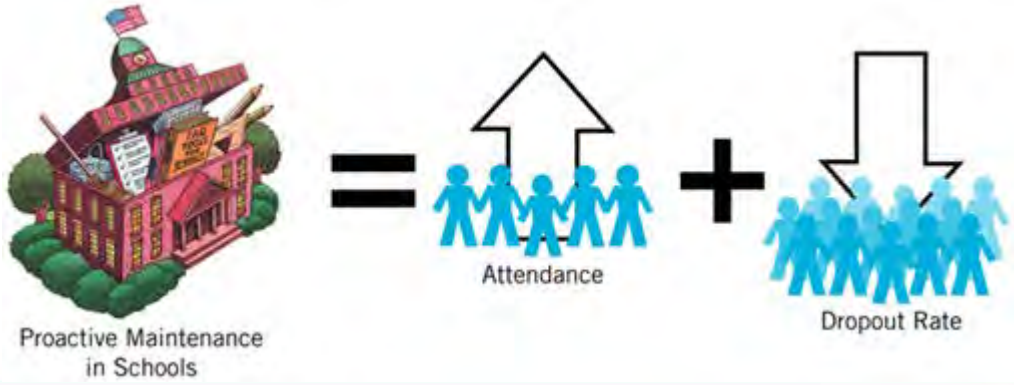
- Children's bodies are more vulnerable to environmental hazards.
  - Children breathe more air than adults.
  - Their immune systems are still developing.
  - Children depend on adults for their health and safety.

IAQ and Health

- Poor IAQ can result in immediate or long-term health effects.
- Many factors found in the indoor environment can cause, trigger or exacerbate asthma symptoms.
  - An average of one out of every 10 school-aged children has asthma.
  - 10.5 million school days are missed each year due to asthma.
- Children’s overall performance decreases with absences from school.

IAQ and Academic Performance

- Scientific evidence demonstrating the relationship between IAQ and human performance and productivity is becoming more robust.
- Examples:
  - Improved IAQ increases productivity and improves the performance of mental tasks, such as improved concentration and recall.
  - Providing adequate outdoor air ventilation can improve student health and performance.
  - Controlling dampness and mold can significantly reduce asthma and other respiratory illnesses.



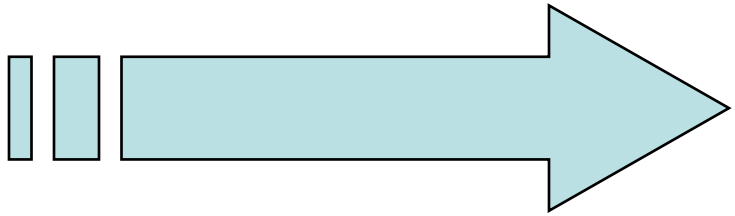
Cost Savings

- Well-implemented IAQ solutions **will** result in cost savings.

1. A decrease in absenteeism will result in increased funding for the district.
2. Making immediate maintenance repairs will avoid costly, long-term repairs.
3. Healthier teachers and staff means less money spent on substitute teachers.

What are Common IAQ Problems?

Pollutant → **Pathway** → **People**



Improper HVAC Maintenance

This filter has never been changed!

Mold and Moisture

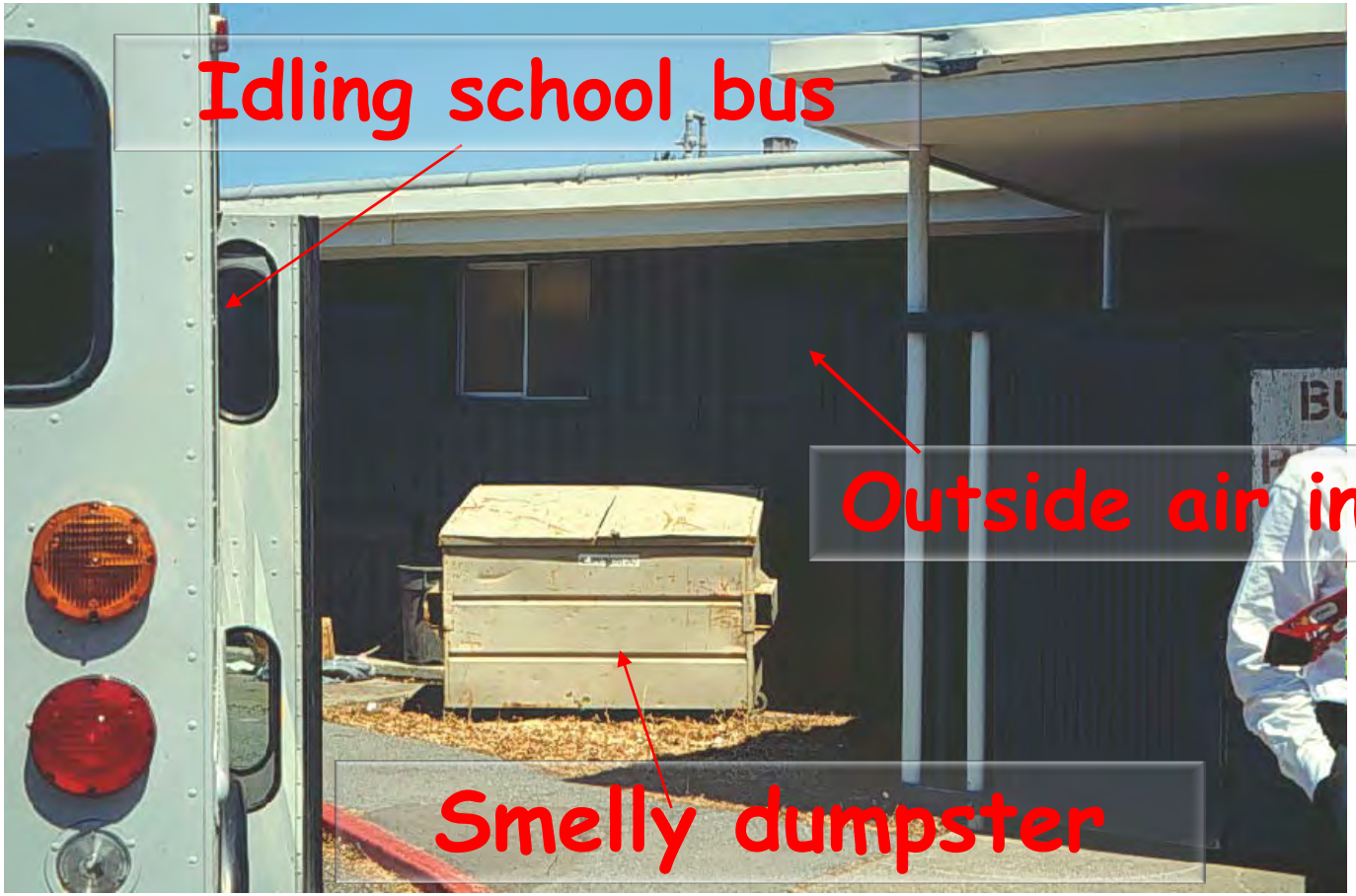
Integrated Pest Management (IPM)

Cleaning and Maintenance

Materials Selection

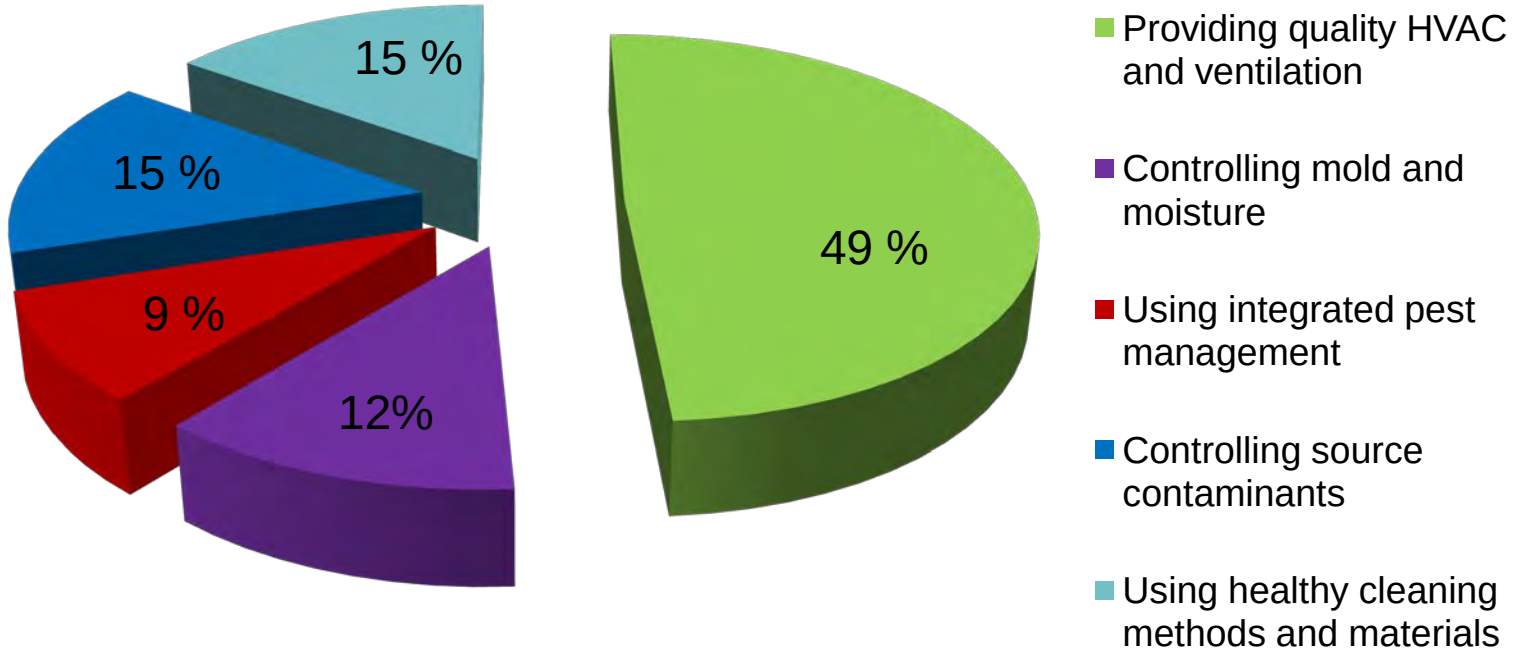
Note obviously unsafe storage conditions!

Source Control



Polling Question

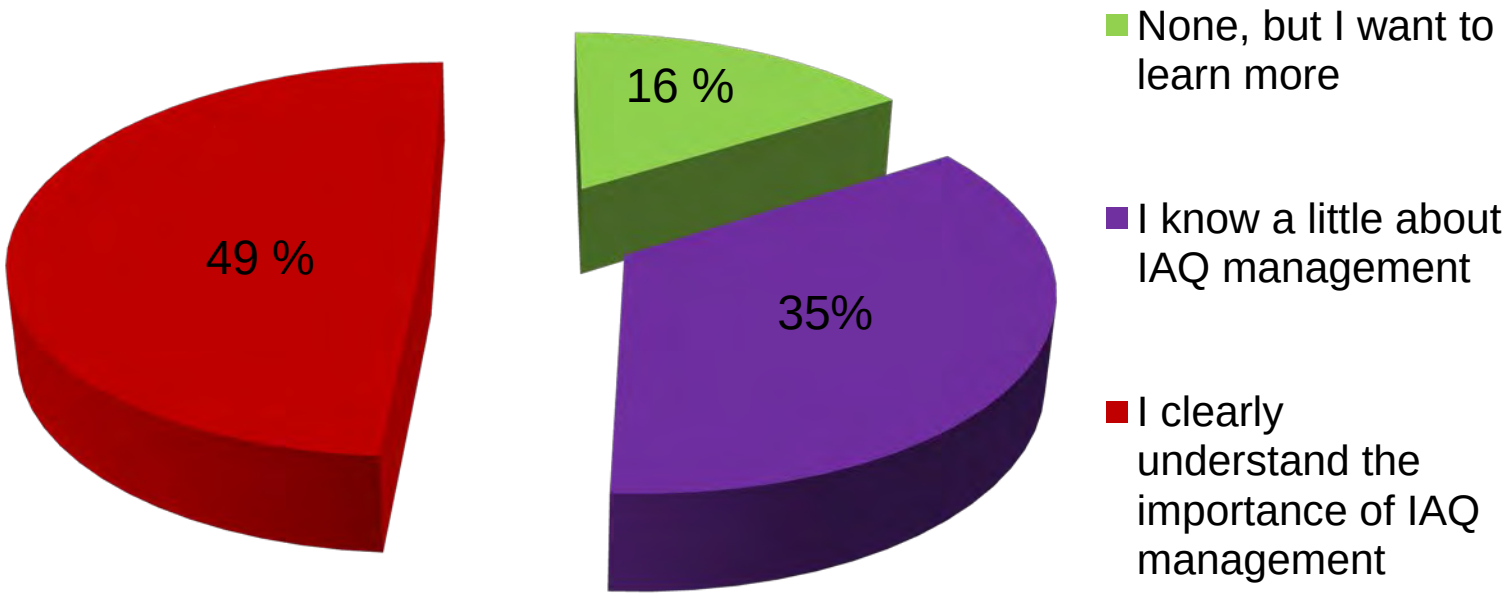
What is the most pressing IAQ issue at your school or the schools that you work with?



Tools to Effectively Manage IAQ Issues

Polling Question

What is your knowledge of IAQ management practices or programs?



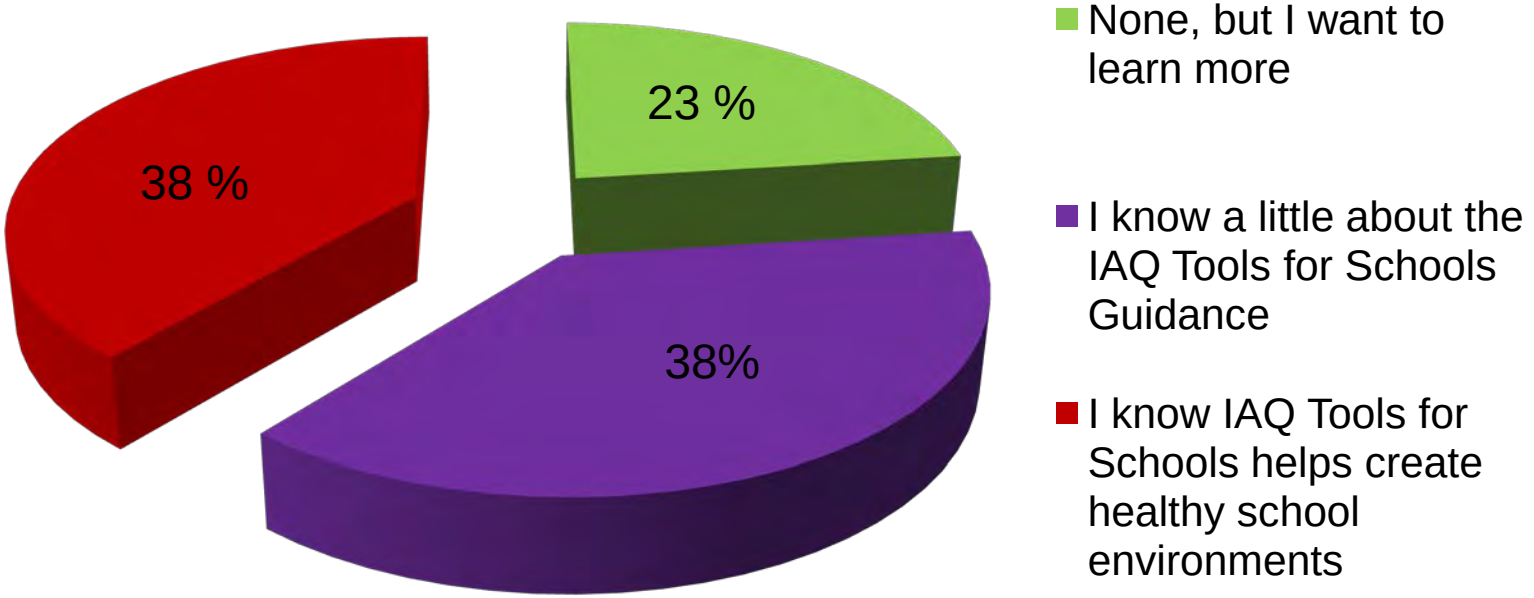
IAQ Tools for Schools Resources

All you need to know about IAQ in schools!

- Interactive Action Kit and Framework
- Schools Connector e-Newsletters
- Schools Email Discussion List
- Past Technical Webinars and Videos
- Access to IAQ Champions Near You
- http://www.epa.gov/iaq/schools/

Polling Question

What is your knowledge of EPA's *IAQ Tools for Schools* guidance?



The Framework for Effective School IAQ Management

The Framework for Effective School IAQ Management:
Six Key Drivers

The Framework for Effective School IAQ Management:
Six Technical Solutions

The Framework for Effective School IAQ Management:
Six Technical Solutions

Quality HVAC
- Inspect HVAC systems regularly
- Establish a maintenance plan
- Change filters regularly and ensure condensate pans are draining
- Provide outdoor air ventilation according to ASHRAE Standard or local code
- Clean air supply diffusers, return registers, and outside air intakes
- Keep unit ventilators clear of books, papers, and other items

Control of Moisture/Mold
- Conduct routine moisture inspections
- Establish mold prevention and remediation plan
- Maintain indoor humidity levels between 30% and 60%
- Address moisture problems promptly
- Dry wet areas within 24-48 hours

Strong Integrated Pest Management (IPM)
- Inspect and monitor for pests
- Establish an IPM plan
- Use spot treatments and baits
- Communicate with occupants prior to pesticide use
- Mark indoor and outdoor areas treated with pesticides

Effective Cleaning & Maintenance
- Conduct routine inspections of school environment
- Develop a preventative maintenance plan
- Train cleaning/maintenance staff on protocols
- Ensure material safety data sheets (MSDS) are available to staff
- Clean and remove dust with damp cloth
- Vacuum using high-efficiency filters

Smart Materials Selection
- Maintain products inventory
- Develop low-emitting products purchasing and use policies
- Use only formaldehyde-free materials
- Use only low-toxicity and low-emitting paint
- Select products based on product rating systems
- Use least toxic cleaners possible (only those approved by the district)

Aggressive Source Control
- Conduct regular building walkthrough inspections
- Test for radon; mitigate if necessary
- Implement a hazardous materials plan (use, label, storage and disposal)
- Establish a school chemical management and inventory plan
- Implement Smoke-Free policies
- Establish an anti-idling school bus policy
- Use walk-off mats at building entrances
- Conduct pollutant-releasing activities when school is unoccupied

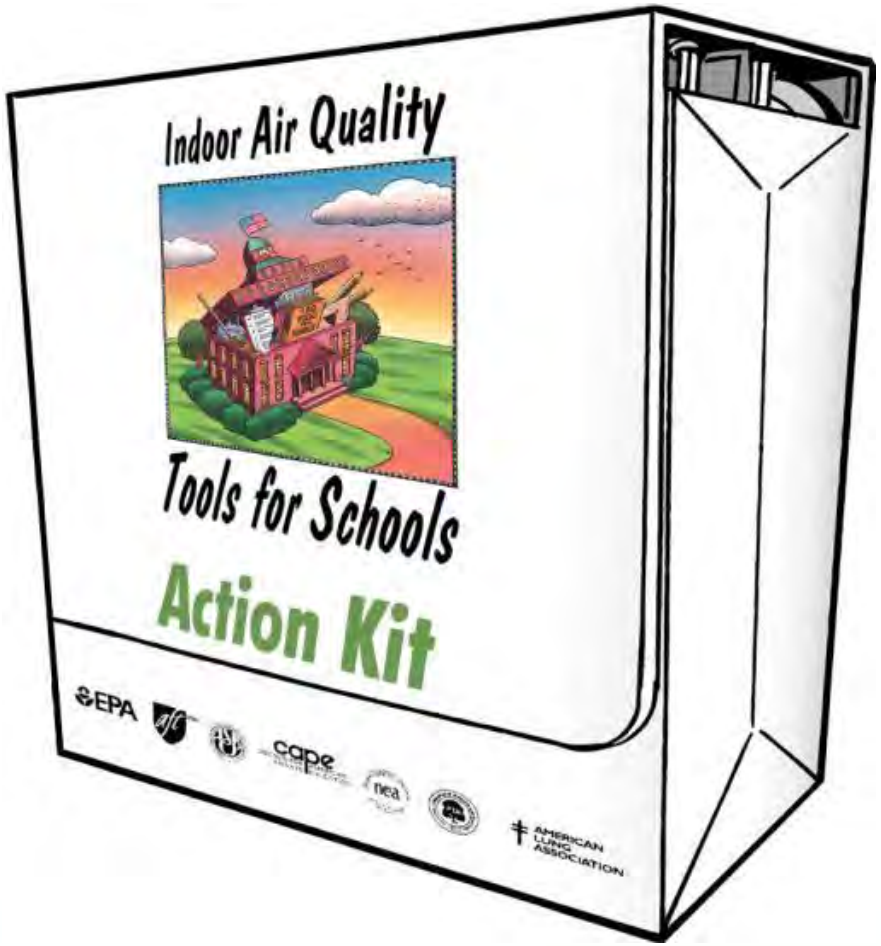
IAQ Tools for Schools Action Kit

- Low cost
- Adaptable to individual schools and school districts
- No specialized training required
- Voluntary
- Common sense approach

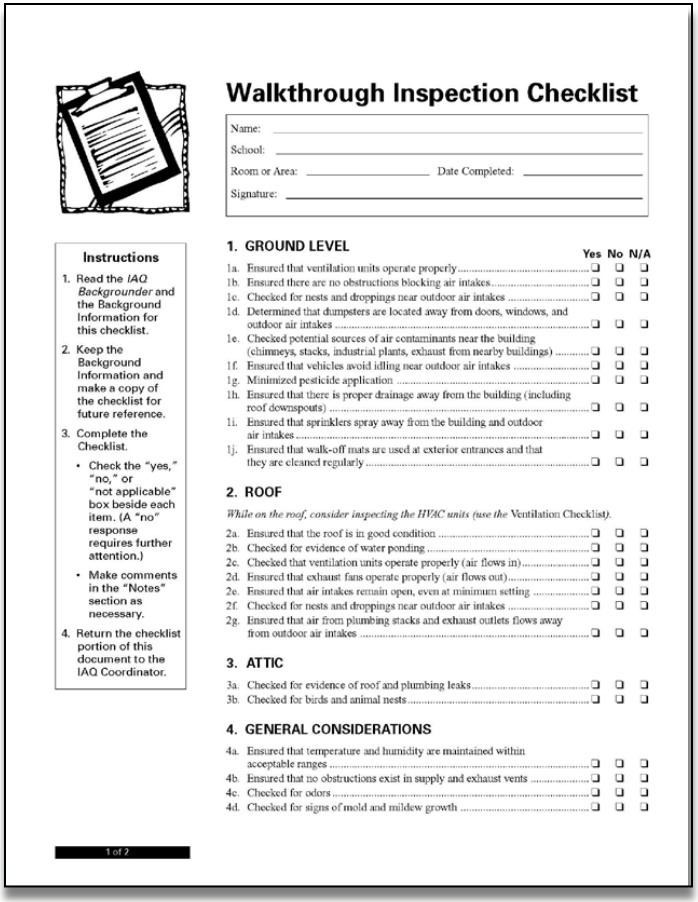
Access an interactive *IAQ Tools for Schools* Action Kit online!

http://www.epa.gov/iaq/schools/actionkit.html

IAQ Tools for Schools Guidance



Use Checklists in the *IAQ Tools for Schools* Action Kit



Walkthrough Inspection Checklist

Name: _____

School: _____

Room or Area: _____ Date Completed: _____

Signature: _____

Instructions

1. Read the *IAQ Backgrounder* and the Background Information for this checklist.
2. Keep the Background Information and make a copy of the checklist for future reference.
3. Complete the Checklist.
   - Check the "yes," "no," or "not applicable" box beside each item. (A "no" response requires further attention.)
   - Make comments in the "Notes" section as necessary.
4. Return the checklist portion of this document to the IAQ Coordinator.

	Yes	No	N/A
1. GROUND LEVEL			
1a. Ensured that ventilation units operate properly	❑	❑	❑
1b. Ensured there are no obstructions blocking air intakes	❑	❑	❑
1c. Checked for nests and droppings near outdoor air intakes	❑	❑	❑
1d. Determined that dumpsters are located away from doors, windows, and outdoor air intakes	❑	❑	❑
1e. Checked potential sources of air contaminants near the building (chimneys, stacks, industrial plants, exhaust from nearby buildings)	❑	❑	❑
1f. Ensured that vehicles avoid idling near outdoor air intakes	❑	❑	❑
1g. Minimized pesticide application	❑	❑	❑
1h. Ensured that there is proper drainage away from the building (including roof downspouts)	❑	❑	❑
1i. Ensured that sprinklers spray away from the building and outdoor air intakes	❑	❑	❑
1j. Ensured that walk-off mats are used at exterior entrances and that they are cleaned regularly	❑	❑	❑
2. ROOF			
While on the roof, consider inspecting the HVAC units (use the Ventilation Checklist*).*			
2a. Ensured that the roof is in good condition	❑	❑	❑
2b. Checked for evidence of water ponding	❑	❑	❑
2c. Checked that ventilation units operate properly (air flows in)	❑	❑	❑
2d. Ensured that exhaust fans operate properly (air flows out)	❑	❑	❑
2e. Ensured that air intakes remain open, even at minimum setting	❑	❑	❑
2f. Checked for nests and droppings near outdoor air intakes	❑	❑	❑
2g. Ensured that air from plumbing stacks and exhaust outlets flows away from outdoor air intakes	❑	❑	❑
3. ATTIC			
3a. Checked for evidence of roof and plumbing leaks	❑	❑	❑
3b. Checked for birds and animal nests	❑	❑	❑
4. GENERAL CONSIDERATIONS			
4a. Ensured that temperature and humidity are maintained within acceptable ranges	❑	❑	❑
4b. Ensured that no obstructions exist in supply and exhaust vents	❑	❑	❑
4c. Checked for odors	❑	❑	❑
4d. Checked for signs of mold and mildew growth	❑	❑	❑

1 of 2

Versatility of the Framework

- The Framework can be used by other overall health, environmental and safety programs and initiatives as well.

- Many effective school IAQ management programs are implemented in conjunction with other health programs.
  - Coordination and integration creates a dynamic that energizes all programs as they learn from each other.

EPA's *IAQ Tools for Schools* – A National Movement

- In the mid-1990's, nearly 50% of K-12 schools had IAQ-related problems.
- *IAQ Tools for Schools* launched in the mid-1990's.
- Today, schools nationwide are implementing IAQ management programs!
  - Over 51% of schools in U.S. have an IAQ management plan (60,000 schools).
  - 85% of those schools base their plan on the *IAQ Tools for Schools* model.

EPA's *IAQ Tools for Schools* Guidance Will Help You Meet the Pillar Two Criteria

II. Healthy School Environments

Element 2A:

- An **integrated school environmental health program** based on an operations and facility-wide environmental management system that considers student, visitor and staff health and safety in all practices related to design, construction, renovation, operations, and maintenance of schools and grounds.

Richard Cox

Environmental Safety Coordinator, Montgomery County Public Schools, Maryland

Why do you view IAQ as an essential component of green and healthy schools?

1. Green School Philosophy
   - Committed to overall environmental and health safety
   - “Do-no-harm” philosophy for cleaning and maintenance
   - Optimal HVAC performance for optimal student performance

2. Building Maintenance Plan (BMP) in 2000
   - Tailored *IAQ Tools for Schools* Framework
   - Uses team approach
   - To date, the District has created BMPs for 83 schools

3. Strive towards constant improvement
   - Preventative maintenance

Richard Cox

Environmental Safety Coordinator, Montgomery County Public Schools, Maryland

How have you used *IAQ Tools for Schools* guidance to create a sustainable IAQ program?

1. Create buy-in from administrators
   - Host IAQ trainings for staff

2. Baseline data collection
   - Gather data that demonstrates improvement over time
   - IAQ questionnaires

3. Organize for continued success
   - Cohesive, reliable IAQ management system
   - Committed faculty and staff

Shelley Bengtson

Environmental Specialist, Omaha Public Schools, Nebraska

Why do you view IAQ as an essential component of green and healthy schools?

1. Healthy Environment
   - Increased test scores and decreased absenteeism

2. Cost Effective
   - Optimal building performance
   - Shared financial burden
   - Proactively address IAQ concerns

3. *IAQ Tools for Schools* as backbone for other environmental programs
   - Reduce chemical exposure
   - Low/no toxic cleaning supplies
   - Integrated pest management
   - Radon, lead, mercury, no-idle policy

Shelley Bengtson

Environmental Specialist, Omaha Public Schools, Nebraska

How have you used the *IAQ Tools for Schools* guidance to create a sustainable IAQ management program?

1. Foster communication
   - Between buildings and grounds staff and departments

2. Baseline collection data
   - Early identification of potential problems
   - Discovery of existing problems and equipment failure

3. Positive response for proactive programs
   - Incorporating and empowering staff

Putting It Together

- **Grasp the Opportunity** – Improve IAQ in the schools you work with, better student health and academic performance, and gain recognition for creating healthy school environments.

- **Use EPA's Resources** –*IAQ Tools for Schools* provides us with a comprehensive management plan to follow.

Take Action!

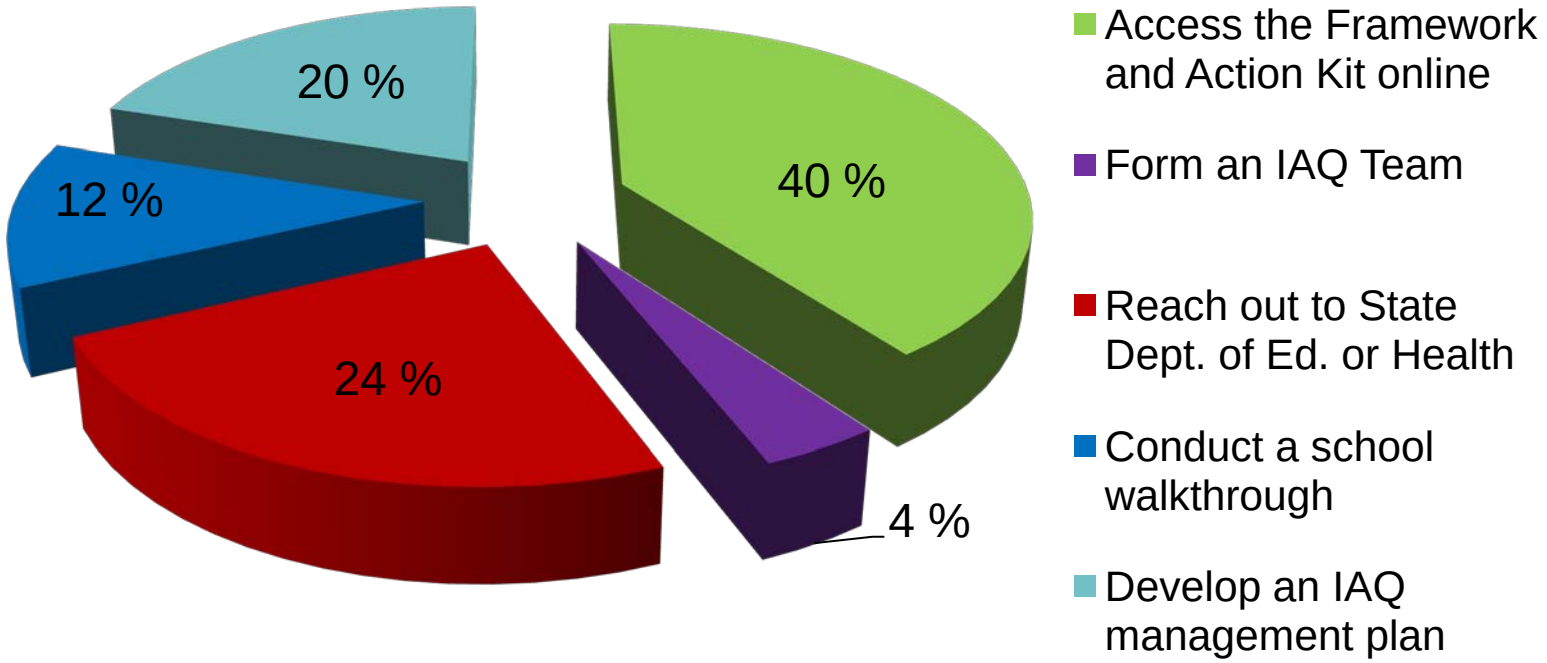
Schools and School Districts – Take the First Steps:

- **Organize** – Access the Framework and Action Kit online and form an IAQ team.
- **Communicate** – Share your IAQ goals and reach out to your State Department of Education and State Health Department for resources.
- **Assess** – Conduct a school walkthrough to identify issues.

- **Plan** – Develop an IAQ management plan for your school.

Polling Question for Schools and School Districts:

The first action I am going to take is:



Take Action!

State Departments of Education and Other Leaders:

- **Organize** – Encourage school districts to utilize *IAQ Tools for Schools.*
- **Communicate** – Educate your state and community about the benefits of proactive IAQ management.
- **Act** – Participate in the *IAQ Tools for Schools* National Schools Network.

IAQ Tools for Schools Resources

- *IAQ Tools for Schools* Connector e-Newsletters and Emails:
  - Send an email to: IAQTfSConnector@cadmusgroup.com
  - View archives at: http://www.epa.gov/iaq/schools/bulletins.html
- Schools IAQ Connector Email Discussion List:
  - Send a blank e-mail message to schools_iaq_connector-subscribe@lists.epa.gov. Then, check your email inbox for your confirmation and membership details.
- *IAQ Tools for Schools* Website
  - Action Kit: http://www.epa.gov/iaq/schools/actionkit.html
  - Framework: http://www.epa.gov/iaq/schools/excellence.html

Speaker and Contact Info

- Shelley Bengtson, Environmental Specialist, Omaha Public Schools, Nebraska
  - Shelley.Bengtson@ops.org

- Richard Cox, Environmental Safety Coordinator, Montgomery County Public Schools, Maryland
  - Richard_CoxJr@mcpsmd.org

Today's Webinar Presentation and Materials

- This webinar will be posted on EPA's website: www.epa.gov/iaq/schools/webconferences.html

- To learn more about other GRS recommended resources, visit: http://www2.ed.gov/programs/green-ribbon-schools/resources.html.

Questions and Answers

are available online at

http://www.epa.gov/iaq/schools/webinars/GreenStrides_QA.pdf